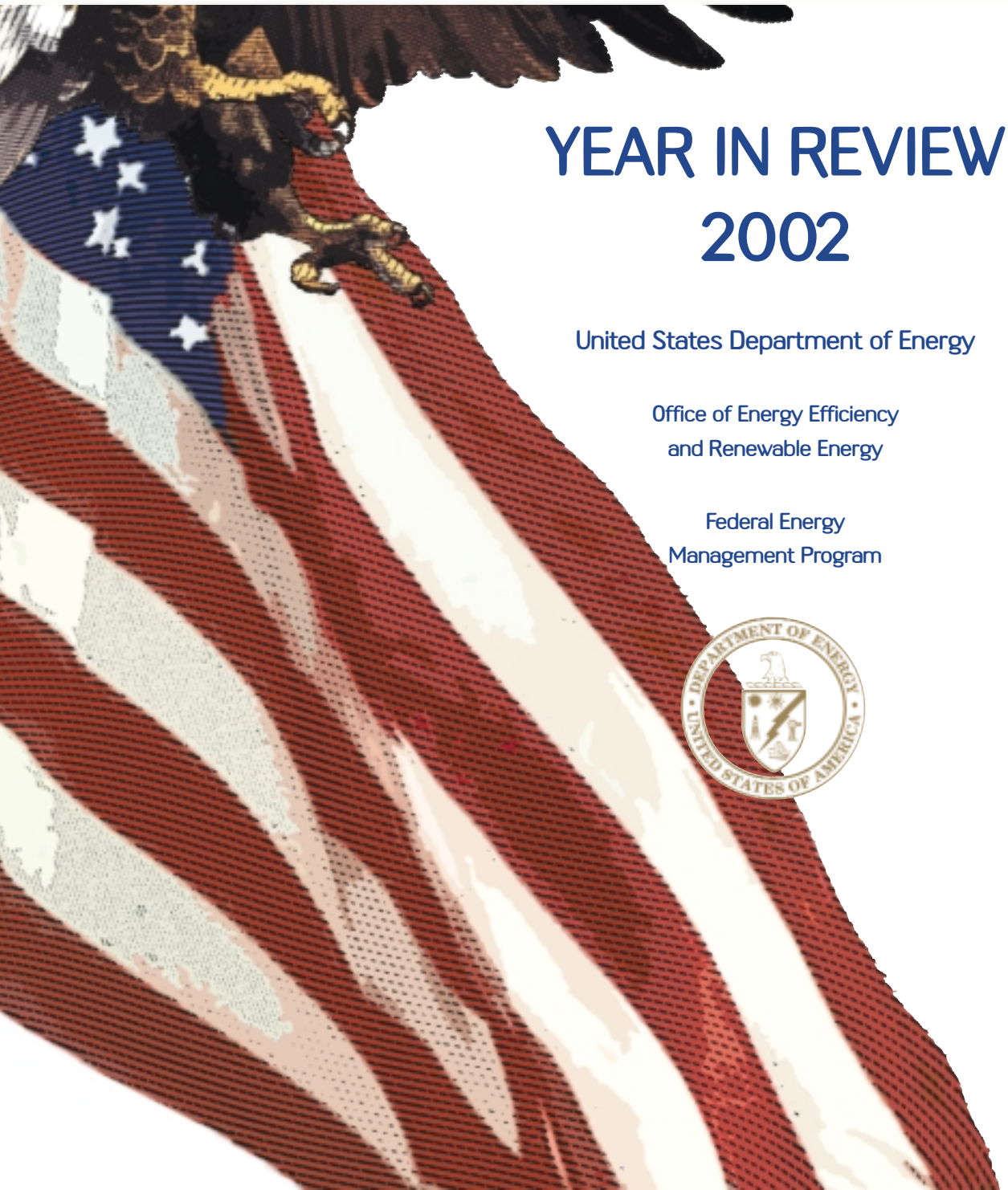
# Federal Energy Management



# YEAR IN REVIEW 2002

United States Department of Energy

Office of Energy Efficiency
and Renewable Energy

Federal Energy
Management Program

# From the Director

For the past 21 years, the Federal Interagency Energy Policy Committee and the Department of Energy have presented the Federal Energy and Water Management Awards. They are the highest awards given to Federal employees for excellence in the stewardship of Federal energy and water resources.

These awards recognize the achievements of groups and individuals who are developing successful energy technology solutions and applying them to the goal of a more secure and independent energy future.

The individuals who have won these awards are setting an example for others in the Federal sector to follow. This is no small point. Since the Federal government is the single largest energy consumer in the United States, leadership in sound energy management ensures that the taxpayers' money is being well spent and our environment is being protected.

In fact, it is worth noting that the Federal government's building-related energy costs have actually dropped more than 20 percent per square foot since 1985. This is due in large part to the successful efforts of Federal energy and facility managers.

As we mark the 25th anniversary of the Department of Energy this year, we will continue to work diligently with the rest of the Federal government to ensure that those in positions of leadership understand the broad benefits of energy and water efficiency. We encourage you to continue this important work, and extend our sincere congratulations for exceptional performance to all the winners.

Sincerely,

Beth Shearer
Director
Federal Energy Management Program
Office of Energy Efficiency and Renewable Energy

# Federal Energy Management

## YEAR IN REVIEW 2002

## INTRODUCTION

To protect the environment and the economy, President Bush has recognized that all Americans share the goal of energy efficiency and conservation. One of the best ways to achieve this common goal, as outlined in the National Energy Policy, is to increase energy efficiency by applying new technology, raising productivity, reducing waste, and trimming costs.

As the single largest domestic user of energy, the Federal government is working hard to meet this goal. In fact, the government reduced energy consumption in its standard buildings by over 20 percent in FY 2001 as compared to the 1985 baseline.

The Federal Energy Management Program (FEMP) leads this initiative by helping individual agencies meet their own energy reduction goals by advancing energy efficiency and water conservation, promoting the use of distributed and renewable energy, and improving utility management decisions at Federal sites.

The first section of this document illustrates how FEMP's four service areas — Technical Assistance, Financing, Policy, and Outreach — are helping agencies target key opportunities in the following areas:

- New Construction
- Building Retrofits
- Equipment Procurement
- Operations & Management
- Utility Management

The second section covers winners of the Presidential, Federal Energy and Water Management, and Showcase awards programs.

Federal energy management, however, is only part of the enormous conservation and efficiency efforts underway by the U.S. Department of Energy. The DOE's Office of Energy Efficiency and Renewable Energy (EERE) has many other programs working to meet the goals of the National Energy Policy and the needs of the American people. Find out more about these programs by visiting the EERE web site at www.eren.doe.gov.

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# TECHNICAL ASSISTANCE

Increasing our national security has been a major challenge to Federal agencies in FY 2002. As we look to enhance the Nation's energy independence, conserving resources and developing and increasing our use of renewable energy technologies has become more important than ever. In FY 2002, the Federal government continued to diversify energy resources as called for in the National Energy Policy. For example, the increased use of distributed energy resources (DER)—small modular, decentralized technologies located in or near the place where energy is used—improves our energy security by ensuring reliable supplies and allows Federal facilities to operate off the electric power grid.

## Distributed Energy Resources

DER systems include photovoltaics, microturbines, fuel cells, wind generation, and combined heat and power (CHP). In FY 2002, 11 Federal sites received assistance to develop DER projects, which resulted in estimated annual cost savings of over $600,000 and estimated annual energy savings of 94,000 MBtus. To link Federal facility managers with DER project developers, equipment manufacturers, and system designers, FEMP held three DER workshops with more than 180 industry and Federal attendees. A new how-to guide assists Federal facility managers in evaluating potential applications and benefits and provides step-by step advice on carrying out a DER project.

## Labs21

The Laboratories for the 21st Century (Labs21) program is an EPA/DOE initiative to help design and construct laboratories using energy efficient and sustainable practices. In FY 2002 Labs21 held six one-day training workshops and hosted the 2002 Annual Conference, with more than 300 attendees. The program developed new tools to help laboratories identify, design and monitor energy cost savings opportunities. Working with more than 40 industry volunteers, Labs21 developed a laboratory rating system based on the LEED™ Green Building Rating System. Labs21 also welcomed two new partners – the U.S. Department of Agriculture and the University of Hawaii – and provided technical support to more than a dozen Labs21 Pilot Partners.

## Operations and Maintenance

FEMP's new Operations and Maintenance (O&M) Program places emphasis on largely untapped energy savings—as much as 10-30 percent—that can be achieved through improved maintenance and operations of existing facilities. In FY 2002, the Assessment of Load-and Energy-Reduction Techniques (ALERT) program continued and trained over 150 Federal personnel, and 35 studies were completed to identify numerous low cost/no cost energy efficiency measures. FEMP developed draft energy metering guidance and conducted basic and advanced metering workshops that trained over 100 people. The *Continuous Commissioning Guidebook* and *O&M Best Practices Guide* will be published in FY 2003 and form the basis for future training. FEMP also provided support to Washington State University's Resource Efficiency Manager (REM) program. Currently 25 highly trained energy managers are serving in Federal facilities on the West Coast where they are exceeding targeted savings.

## Renewable Power

In response to E.O. 13123, Federal agencies are striving to purchase 2.5 percent of their electricity use from renewable sources by 2005. In FY 2002, 59 gigawatt hours

*Louis Stokes Laboratories/Building 50, NIH Bethesda, MD, was designed with high-performance energy-saving features and uses less than half the energy of a conventional laboratory building.*

of new renewable energy were installed or purchased by Federal facilities. Agencies are now using 362 gigawatt hours of renewable energy from sources that meet the requirements of the E.O., thus meeting more than 26 percent of the goal. Included in this figure are over 3000 solar energy systems installed on Federal roofs toward the goal of 20,000 solar roofs by 2010. FEMP's Renewable Energy Program assisted more than 36 projects in FY 2002 and improved tracking of all Federal renewable energy projects and purchases.

FEMP also worked with the Bureau of Land Management (BLM) to increase renewable energy production on Federal lands. The work resulted in a White House report recommending that the President and Secretaries of Interior and Energy reevaluate access limitations to Federal lands in order to increase renewable energy production such as biomass, wind and geothermal, and solar. Since the draft report was issued, wind energy developers have submitted nearly 40 new applications compared to less than five in the previous 10 years. If most of the grants result in wind power development projects, the estimated wind power implemented will be over 2,000 MW.

### Sustainable Buildings

Executive Orders 13101 and 13123 direct Federal agencies to apply the principles of sustainable design to the siting, design, and construction of new facilities. In FY 2002, FEMP chaired six Interagency Sustainability Working Group meetings to develop a forum for information exchange on policies, best practices, and case studies on sustainable design and construction between Federal agencies and public/private organizations. A compilation of Federal agency policies, guidelines, and directives on sustainable design and construction was produced and distributed, and a draft resource document, *The Business Case for Sustainable Design in Federal Facilities*, was developed.

## TECHNICAL ASSISTANCE

To identify, design, and implement new construction and facility improvement projects, Federal agencies receive assistance in areas such as:

- Energy and water audits for buildings and industrial facilities
- Peak load management
- Whole-building design and sustainability
- Renewable energy technologies
- Distributed energy resources
- Combined heat and power technologies
- Energy efficient products
- New technology deployment

# FINANCING

Innovative energy financing through public-private partnerships is the most important tool to enable Federal energy managers meet the President's energy-saving goals. Recognizing this, in FY 2002 Federal agencies continued to pursue alternative financing opportunities and increase contract dollar volumes to new levels.

Super Energy Savings Performance Contracts (ESPCs) and Utility Energy Service Contracts (UESCs) are practical and flexible vehicles that allow for private-sector up-front financing of long-term energy saving projects. Contractors are paid from the savings resulting from the projects. Agencies using Super ESPCs and UESCs pay only for the services they choose, fine-tune the guarantee, and assign responsibilities to suit their own in-house resources, capabilities, and priorities.

FEMP made several improvements in FY 2002 to simplify procedures and encourage agencies to expand the use of these services. FEMP totally redesigned the financing section of their Web site to provide better access to enhanced information for ESPC and UESC programs. In addition, Alternative Financing Representatives were assigned to each DOE Regional Office to expand their focus on Federal agency customers' project financing goals and improve regional support.

### Super ESPCs and UESCs encompass:

- Boiler/Chiller Improvements
- Building Energy Automation Systems
- Lighting Improvements
- Building Envelope Modifications
- Electric Motors & Drives
- HVAC/Refrigeration
- Electrical Distribution or Cogeneration Systems
- Steam System Improvements
- Heat Pumps
- Renewable Energy Systems
- Water & Sewer Systems
- Rate Reduction/Audits

## ESPCs

Federal customers in FY 2002 continued to benefit from FEMP's ongoing improvement of the Super ESPC program and its capacity to respond to customers' needs.

Last year, FEMP provided Project Facilitators to guide agency customers through the process of developing ESPC projects, awarding delivery orders, and verifying savings. In FY 2002, FEMP improved the way Project Facilitators serve their agency customers. Instead of signing up for a package of standard services, agencies can now choose and pay for only the services they need from their Project Facilitator. Additionally, Project Facilitator services are now free to agency customers until the contractor submits its initial project proposal, when the agency knows what services will be needed and is in a better position to commit to going forward.

In March 2002, FEMP introduced the newest Technology-specific Super ESPC, Biomass and Alternative Methane Fuels (BAMF), which emphasizes the use of such fuels to increase the use of renewable domestic energy resources and to reduce costs at Federal facilities. Five energy service companies were competitively awarded the BAMF contracts, worth $200 million in services.

In FY 2002, 16 Super ESPC delivery orders totaling $97.1 million were awarded. The total value of private-sector investment through Super ESPCs is $327.2 million,

covering 87 awarded delivery orders for 14 Federal agencies. The cumulative guaranteed cost savings from these projects is estimated to be $785.3 million.

## UESCs

FEMP also pursues utility energy services, financing, procurement, and incentives to support Federal projects in a new and changing utility environment. More than 60 electric and gas utilities have implemented energy projects and upgrades at Federal facilities around the country, with utility investments totaling more than $775 million. $61 million invested in FY 2002 will save $7.6 million each year.

To promote expanded use of UESCs, FEMP enhanced its utility services and restructuring Web site in an easy-to-use format. They also expanded their site to link to PNNL's new utility management site, which focuses on managing utility costs and improving energy use efficiency. Electric and gas cost management sections provide information on utility restructuring, energy prices and trends, and potential supply reliability concerns. The energy use management section provides information about funding and assistance for energy projects. The new link can be accessed at www.eren.doe.gov/femp/utility/utility_restruct.html.

Many Federal organizations have relied on the guidance documents, training programs, and technical assistance provided to support their use of Super ESPCs and UESCs, and have found alternative financing to be an essential element of their energy management strategies. However, both Federal and private-sector parties agree that an increase in the use of ESPCs and UESCs is needed to meet the mandated energy savings goals set for 2005.

*Naval Amphibious Base, Coronado, CA used a Super ESPC to install skylights and high-output T5 fixtures with photocells that detect natural daylight, virtually eliminating the need for electric lighting during daytime operations.*

## F I N A N C I N G

Agencies need dollars to make projects happen. They seek project financing through:

- Energy Savings Performance Contracts (ESPCs)
- Utility Energy Savings Contracts (UESCs)
- Rebates
- Public benefits funds

# POLICY

## Implementing the President's National Energy Policy

In FY 2002, the Administration continued building on the policy framework established by Executive Order 13123 and the National Energy Policy, with new initiatives supported by FEMP. Recognizing the government's ability to lead by example and stimulate the development of energy efficient products, President Bush signed Executive Order 13221 directing Federal agencies to purchase products that use minimal standby power when possible. During FY 2002, FEMP, in collaboration with the General Services Administration, the Defense Logistics Agency, and the ENERGY STAR® program, developed a list of office, video, and audio products that use minimal standby power. FEMP worked closely with all the leading office product and consumer electronic manufacturers to develop low standby power recommendations and influence the design of current and future products containing both internal and external standby power devices. DOE estimates that the Federal government will save an estimated $25 million in energy costs over the next six years from this program, which is enough electricity to power about 40,000 homes for one year.

Continuing the theme of using the government's purchasing power as a springboard for innovative and sustainable energy choices, Secretary of Energy Spencer Abraham announced on April 22, 2002 that DOE will purchase electricity generated from renewable resources to cover approximately 17 percent of its electricity needs at DOE Headquarters facilities in Washington, DC and Germantown, Maryland. The contract calls for an annual purchase of 6 million kilowatt hours, roughly the amount of electricity needed to power 600 homes each year.

The Interagency Energy Management Task Force, chaired by FEMP, continued to closely coordinate policy implementation and associated reporting requirements with the Federal community. Issues highlighted in the meetings of the Task Force during the year included the following:

- Federal agencies' performance toward the Executive Order 13123 greenhouse and renewable energy goals.

- New Federal building standards for commercial and multi-family high-rise residential buildings. FEMP coordinated Task Force review and comments on the draft standards prior to the public rulemaking process.

- The Environmental Protection Agency's Climate Leaders and the Green Power Partnership programs.

- The role of the Office of the Federal Environmental Executive in Federal energy management. FEMP also supported the Federal Environmental Executive by providing significant input to *Leading by Example: A Report to the President on Federal Energy and Environmental Management*.

- Status and requirements of proposed House and Senate energy legislation. FEMP provided the Task Force with a detailed analysis of the impact of the two proposed goal frameworks on individual agencies.

On June 14, 2002, the Office of Management and Budget hosted a meeting of the agency Senior Energy Officials where they discussed the *Report to the President on Federal Energy and Environmental Management*, the 2001 Energy Scorecards, Executive Order 13221 on Energy Efficient Standby Power Devices, and the status of energy savings performance contracts and utility energy service contracts.

## Reporting on Energy Management

During 2002, agency reports and data were compiled into the *FY 2001 Annual Report to Congress on Federal Government Energy Management*. Major findings of the report include:

- The government reduced the energy intensity of its standard buildings by 23.3 percent in FY 2001 versus the FY 1985 baseline year.
- Six agencies–the Departments of Commerce, Defense, Energy, Justice, Transportation, and the Tennessee Valley Authority–achieved reductions of more than 20 percent in buildings energy use per gross square foot from 1985.
- The Federal government spent approximately $3.9 billion for buildings energy during FY 2001, a 14.2 percent increase ($488.6 million) from FY 2000 expenditures. This increase is attributable mainly to price increases for most fuel types consumed in buildings, such as:
  - Natural Gas (60.2 percent increase)
  - Fuel Oil (27.1 percent increase)
  - Electricity (4.0 percent increase).
- Carbon emissions from energy used in Federal facilities declined 19.4 percent by FY 2001 as compared to FY 1990.

FEMP also worked closely with the Office of Management and Budget during FY 2002 to prepare a summary report of the Federal agencies' energy scorecards for the FY 2001 reporting period, required by Executive Order 13123.

*On Earth Day 2002, Secretary Abraham announced that DOE Headquarters will Lead By Example by its cost-effective purchase of green power to cover 17% of its electricity needs.*

## P O L I C Y

Federal agencies must reduce energy use by 35 percent by 2010 in comparison to 1985 levels. Effective coordination and sound guidance will help them meet this mandate. Policy efforts include:

- Annual Report to Congress and the President
- Interagency Federal Energy Management Task Force
- Policy guidance
- Legislative updates and tracking
- Federal Energy Management Advisory Committee

# OUTREACH

In FY 2002, agency and departmental heads were faced with the responsibility to provide guidance to their staff on strategies to improve our energy security. Federal agencies promoted themes of energy conservation, security, and independence through a variety of education and awareness programs. At the same time, they continued to recognize outstanding successes of individuals and groups striving to conserve resources and develop the use of renewable technologies. Throughout the year, participation in meetings and conferences brought Federal workers together to share success stories, promote partnerships, and honor achievements.

## Recognition

Agencies recognized exemplary leadership through annual energy management award programs. At DOE's Federal Energy and Water Management Awards ceremony, Secretary of Energy Spencer Abraham honored 56 individuals, groups, and organizations for implementing efficiency improvements and saving energy at Federal facilities. The White House presented the Presidential Awards for Leadership in Federal Energy Management on October 24. In its third year, five outstanding teams were selected for applying efficient energy strategies and technologies to the goals of contributing to a more secure and independent energy future. In addition, 19 Federal buildings were designated as Energy Saver Showcases. (Read more about these programs and honorees in the special awards sections).

Twenty of the largest Federal agencies participate in FEMP's *You Have the Power* campaign to help reach their energy management goals. The campaign promotes "Energy Champions" – employees making extraordinary efforts to help their agencies save energy and money. Accomplishments are highlighted through campaign posters sent to regional offices around the Nation. In FY 2002, 22 individuals were recognized, increasing the total number of Energy Champions to 338 since 1997. In addition, nine agencies developed posters featuring their own unique projects for recognition during Energy Awareness Month in October. The posters highlighted Federal efforts from renewable energy power purchases to sustainable building design to solar power in Africa.

## Awareness

Energy managers, financial officers, and administrators received guidance on time-sensitive issues through the FEMP Web site at www.eren.doe.gov/femp. In September 2002 alone, the Web site received 558,058 hits, a 49 percent increase from the same month in FY 2001. In-depth information was also available through the *FEMP Focus*, published six times in FY 2002. *FEMP Focus* covers topics of national importance and highlights success stories and critical achievements of Federal agencies and their private sector partners.

Agencies promoted energy conservation to their computer-using communities with the help of FEMP's "Lead By Example" program. Start-up screen images with energy saving themes from the "Lead By Example" and "You Have the Power" poster series were installed on Federal Local Area Networks to remind employees to save energy when they booted up their computers each morning.

Federal agencies marked Earth Day and Energy Awareness Month with patriotic campaigns to promote energy awareness among their employees. Themes put emphasis on the importance of conserving energy and using renewable energy resources to help protect our energy supply and strengthen our National security. Agencies sponsored and participated in local, regional, and national Earth Day and Energy Awareness Month activities to distribute posters, bookmarks, and other awareness materials containing memorable energy saving-messages.

Many Federal energy managers also worked hard in FY 2002 to create and improve awareness programs at their facilities using FEMP's new handbook, *Creating an Energy Awareness Program*. The guide provides a step-by-step approach to help design and implement a customized, effective outreach program to increase energy-efficient behavior of employees.

## Energy Expo

To help educate their own employees, as well as share information about their own energy management activities and programs, agencies participated in a number of Federal conferences and expositions, the largest being Energy 2002: "Hot Challenges, Cool Solutions" held during June in Palm Springs, California. The three-day conference sponsored by FEMP and co-sponsored by the General Services Administration and the Department of Defense was attended by more than 1,000 public and private sector participants. Tracks included project financing, renewable technologies, transportation, utilities, water resource management, and policies, programs, and partnerships affecting Federal energy managers. The most popular track was sustainable building design, with eight sessions attended by more than 1,000 people. FEMP's next annual conference will be held August 17 - 20, 2003 in Orlando, FL.

*Outreach materials featuring patriotic themes helped to promote energy independence and security by encouraging the increased use of renewable resources.*

## O U T R E A C H

Communications and recognition programs heighten awareness of the benefits of energy efficiency and reward exemplary leadership.

- Newsletters and Web sites
- Awareness and recognition campaigns
- Annual Awards ceremonies
- Conferences and expositions

# PRESIDENTIAL AWARDS *for* LEADERSHIP *in* Federal Energy Management

The Presidential Awards for Federal Energy Management were established under Executive Order 13123. Now in its third year, the Awards are the most prestigious given to Federal employees for excellence in the wise, and often creative, management of Federal energy and water resources.

These awards recognize the very best efforts of Federal agency energy teams who work toward the advancement of efficient energy technologies and apply them to the goals of contributing to a more secure and independent energy future. The award winners are developing solutions to the challenges of maintaining the quality of government operations while decreasing energy dependence. These projects – which include energy management strategies, use of alternative financing tools, public outreach and communication programs, water management programs, and renewable energy projects – are helping us to meet energy demands while driving new markets for innovative technologies.

The awards program was hosted by and included remarks from Mark Everson, Deputy Director for Management, Office of Management and Budget; John Howard, Federal Environmental Executive, White House; Kyle McSlarrow, Deputy Secretary, Department of Energy; and Raymond Dubois, Jr., Deputy Under Secretary of Defense for Installations and the Environment, Department of Defense.

President Bush and Vice President Cheney extended their congratulations and gratitude to those Federal Agency teams recognized for outstanding efforts to make the Federal government's energy management program a success. Their important work reflects the true spirit of the Nation and contributes to a brighter future for all.

# U.S. Department of Defense

## Navy Shipboard Energy Conservation Team

### "Outstanding Performance"

The Navy Shipboard Energy Conservation Team provides the Navy's fleets with new energy conserving technologies, conservation training, strategies, and awareness. The team increased steaming hours at no extra cost by managing fuel consumption and transit speeds and eliminating unproductive energy expenditures. In FY 2001, the team's work resulted in 38,000 hours of additional steaming, avoiding energy costs of $41.7 million. This is equivalent to the fuel cost of operating 19 destroyers for an entire year. The team's work captured fuel savings of more than one million barrels of fuel oil, similar to removing 68,000 sport utility vehicles from the Nation's roads for a year. Installation of stern flaps on 61 ships resulted in estimated savings of 203,000 barrels of fuel. When fully implemented (by 2005), the team's stern flap work alone will save 446,000 barrels of fuel, or $18 million annually.

The Navy's Pacific Fleet avoided costs of $25.5 million from 86 ships, and the Atlantic Fleet saved $16.2 million from 118 ships. Among these, the USS BLUE RIDGE, a command ship for the U.S. 7th fleet in Yokosuka, Japan, saved more than $2.25 million; the USS KEARSARGE reduced fuel consumption by 20 percent and saved $1.75 million; the USS COWPENS, supporting Operation Noble Eagle in the war against terrorism, avoided costs of $923,000; and the USS PORTER, despite increased threat conditions and increased energy requirements, avoided costs of $444,000.

*U.S. Department of the Navy team members (l to r): Col. Paul Sullivan, Hasan Pehlivan,≠ Raymond Dubois, Mark Rebold, John Hartranft, Alan Roberts, Mark Everson, ≠ William Stoffel, John Howard, Richard Griggel, Kyle McSlarrow, ≠ Anthony DiGiovanni, Wayne Arny≠*

# U.S. Department of Commerce

## "Institutionalization"

The Department of Commerce is institutionalizing the goals of Executive Order 13123 with the development of a Strategic Implementation Plan for Energy Management. This plan, fully endorsed by the Department's Senior Energy Official, will engage managers with responsibility for energy and water management within the Department and all of its bureaus. The plan provides guidance on the initiatives, goals, and objectives of the Order and on the resources needed to accomplish these goals. The plan establishes an agency energy team consisting of appropriate procurement, legal, budget, management, and technical representatives. Implementing the plan will help Commerce achieve additional energy reduction goals and further reduce its $30 million annual utility bill.

Commerce currently has an excellent energy management program in which all of its bureaus and agencies participate actively. It has four Federal Energy Saver Showcase facilities and has partnered with the U.S. Green Buildings Council for Leadership in Energy and Environmental Design certifications on both new construction and building renovations. The Department's National Institute of Standards and Technology's project team implemented a site-wide energy conservation master plan, and developed and updated life-cycle cost methodology and software to help the entire Federal government save both energy and money. The Department's National Oceanic and Atmospheric Administration (NOAA) facilities are installing real-time metering and will develop an energy demand management program. NOAA biologists teamed with DOE and the City of Seattle to build a water recycling plant that is saving the city 180 million gallons of water and $230,000 in energy costs annually. Because of its effective policies and practices, Commerce has already attained a 34 percent energy reduction in its buildings, exceeding the Executive Order 13123 goal of a 30 percent energy reduction by fiscal year 2005.

*U.S. Department of Commerce team members (l to r): Bernie Denno, Kyle McSlarrow, Denise Wells, Raymond DuBois, Jim Woods, Mark Everson, Karen Thomas, Mark Kuklewicz, David Henry, John Howard, Doug Elznic, Otto Wolff*

# U.S. General Services Administration

## Public Buildings Service

### "Implementation"

The General Services Administration's (GSA) Public Buildings Service (PBS) effectively uses a variety of tools to improve energy efficiency, reduce greenhouse gas emissions, and help Federal agencies meet Executive Order 13123 requirements. Through its extensive national network, PBS built a Nationwide program to help all Federal agencies meet energy reduction goals by guiding GSA regional offices in making energy efficiency improvements. GSA categorizes its buildings according to energy efficiency needs, prioritizes project implementation, and provides technical advice or direct funding to regional offices.

PBS highlights include: implementation of seven photovoltaic projects to reduce peak demand; installation of almost $50 million of energy retrofits to achieve savings of more than one trillion Btu; awarding of 23 energy savings performance contracts (ESPC) and 21 utility energy services contracts (UESC) to finance priority projects that will save almost 535 billion Btu annually–enough energy to supply 5,300 typical households for a year; incorporation of Model Green Lease provisions; incorporation of sustainable design principles; and purchasing green power. In FY 2001, GSA purchased 8 gigawatthours of green power–equivalent to almost seven hours of power used by the entire city of Washington, D.C. By the end of FY 2002, GSA estimates it will purchase 14 gigawatthours of green power and anticipates the total green power purchases in FY 2003 will exceed 32 gigawatthours.

*U.S. General Service Administration team members (l to r): Kyle McSlarrow, Raymond≠ DuBois, Mark Everson, Steve White, Laura Strohbach, Debra Yap, Ken Shutika, ≠ Karen Curran, Mark Ewing, David Eakin, Denise Broskey, John Howard, ≠ Linda Collins, Paul Lynch≠*

# U.S. Department of Health and Human Services

# U.S. Department of the Army

## National Cancer Institute/U.S. Army Garrison at Fort Detrick

## "Results"

The Partnership for Energy Performance (PEP) is a performance contracting initiative underway at Fort Detrick that is achieving significant reductions in energy and energy-related costs. PEP has a dedicated team of employees from the National Cancer Institute (Department of Health and Human Services); the U.S. Army Garrison; Allegheny Power (the local utility in partnership with Cogenex Corporation); and SAIC Frederick (the operations and technical support contractor for the National Cancer Institute), working together in a public-private partnership to successfully implement facility improvements. Under a utility area-wide agreement, PEP developed a utility energy services contract (UESC) to acquire energy conservation services and more than $25 million of facility improvements. The goal of PEP in signing this agreement is to help the Fort Detrick facility meet the energy reduction goals of Executive Order 13123.

Through the implementation of the PEP program, Fort Detrick expects to achieve annual energy and maintenance cost savings in excess of $2.9 million. To date, the program has achieved energy and maintenance cost savings of more than $3.6 million and expects to save more than $60 million over the term of the contract. Annual electricity savings exceed 19 gigawatthours and more than 163 million pounds of steam. The PEP program is helping Fort Detrick do its part to improve local air quality, too. Projected savings will result in an annual reduction of 12 tons of carbon monoxide, 22 tons of sulfur dioxide, 42 tons of nitrogen oxides, and six tons of particulates. Carbon dioxide emissions will be reduced by nearly 33,000 tons annually—this is equivalent to planting more than 6,500 acres of trees. Almost 340 billion Btu of energy will be saved each year—enough to provide the annual needs of 2,800 typical area households. Nearly 17 million gallons of water will also be saved annually—the equivalent of almost 16 hours of water use by the entire county of Frederick, Maryland, where the facility is located.

*U.S. Department of Health and Human Services and Army team members (l to r): Kyle McSlarrow, Col. John Ball, Charles Leisure, Mark Everson, Raymond DuBois, Darcy Immerman, Mitzi Guarino, Kim Nusbaum, Richard Ellison, Jack Mahon, Dennis Dougherty, Jean LaPadula, David Braslau, Bradley Anderson, Dr. Mario Fiori, Lt. Col. Donald Archibald, John Howard*

# U.S. Department of Defense

## Pentagon Renovation Office

### "Outreach"

The Pentagon Renovation (PenRen) Integrated Sustainable Design and Constructability (ISDC) Team for public outreach and communication on energy management shoulders responsibility for integrating and balancing sustainable design and energy efficiency with force protection measures necessary to protect the Pentagon. The capabilities of the Pentagon's new energy management control system and energy efficient windows proved invaluable for containing the effects of the September 11th attack on the Pentagon. In 2001, PenRen dramatically improved sustainable construction policies and procedures and became an ENERGY STAR® Partner with the Environmental Protection Agency (EPA). The complex nature of the projects implemented by PenRen require the ISDC team to incorporate sustainable design into the overall acquisition and management strategy of the program. The acquisition strategy includes innovative concepts—"performance-based" contracting and "design-build"—which are not business as usual for the government.

In addition, PenRen's management implementation strategy involves Integrated Product Teams composed of government and contractor personnel with various duties and responsibilities from many different organizations. PenRen's projects are Federal showcases for sustainable design, environmental protection, energy conservation, and transportation alternatives. The PenRen program hosts facility tours for Federal agencies, sponsors and participates in U.S. Green Buildings Council Leadership in Energy and Environmental Design (USGBC LEED) training workshops, and is currently assisting USGBC in refining the LEED rating system. PenRen actively promotes Federal energy conservation and sustainable design policies at numerous Federal and private sector workshops and conferences, in meetings with local governments, and in communications with industry and national organizations.

*U.S. Department of Defense team members (l to r): Kyle McSlarrow, Mark Everson, Michael Sullivan, Gail Vittori, Terry Watson, Michael Ryon, Gregory Stortstrom, Mark Piedmonte, John Olejniczak, Daniel Lavanga, Teresa Pohlman, Susan Kasun, Tia Heneghan, Marc Gravallese, Florence Meyers, Susan Donkers, Lidia Berger, Eben Hamilton, Kenneth Catlow, John Howard, Raymond DuBois*

# FEDERAL ENERGY *and* WATER MANAGEMENT AWARDS

The President has challenged all of us in Federal service to revolutionize how we approach energy efficiency and renewable energy technologies while we pursue the recommendations of the National Energy Policy. Congress has also assigned a high priority to energy conservation and renewable energy in legislation. Federal Energy and Water Management Award winners are leading the way to energy efficiency with innovations that have practical applications in the Nation's homes and businesses, as well as in government.

The Awardees have used a number of tools to help revolutionize energy management – from energy audits and energy savings performance contracts ... to utility energy service contracts ...to the ENERGY STAR® program. Add to that immense resourcefulness and dedication, and you've got achievements worthy of great celebration.

The 53 award winners in 2002 were selected from 121 nominees submitted by 17 Federal agencies. These numbers are evidence of the thousands of men and women who are finding effective ways to manage energy at U.S. installations around the world.

The people and projects honored here show how individuals and Federal employees can cut our Nation's energy bill, reduce greenhouse gas emissions, and increase our Nation's energy security through greater energy independence. FEMP is grateful for their work on the front lines of the revolution and the pursuit of excellence in Federal energy and facility management.

## Water Management Award to an Organization

### U.S. Naval Activities, United Kingdom

### Department of the Navy
### London, United Kingdom

Through a major water conservation infrastructure project and the application of water management best practices, U.S. Naval Activities, United Kingdom (NAVACTUK) achieved a 26.5 percent reduction in water consumption from its baseline year. The Command redesigned and replaced main water supplies and sought and received a rebate for lost sewerage charges from the local water service company. NAVACTUK's $750,000 investment saved almost 53,000 gallons of water per day, totaling 19 million gallons per year. The project generated annual savings of $110,000 in water and sewerage charges and has a payback period of only seven years.

*Robert Grieves and Lieutenant Commander Mark Roys*

## Water Conservation Awards to Small Groups

### Jeffrey Lettau
### Mike Moran, Jr.
### Jim Roberts
### Keith Shields

### Waste Not, Water Not–
### A Campaign to Conserve Water

### Pacific Northwest National Laboratory
### Department of Energy
### Richland, Washington

*Keith Shields, Jeffrey Lettau, Jim Roberts, Mike Moran, Jr.*

During FY 2001, a team at the Department of Energy's Pacific Northwest National Laboratory (PNNL) applied state-of-the-art grounds management techniques to maintain the landscaping surrounding the PNNL campus. PNNL conserved approximately 114 million gallons of water by using the latest technology to gather data on watering systems, using best-practice landscape methods, monitoring soil moisture, and fertilizing. In addition, PNNL saved approximately 1.5 million gallons of water and almost $3,000 in waste water fees from the city. The facility also avoided sending water into the sewer system, which saved $33,000 in sewer costs. The innovative thinking of this team, which included the use of predictive water flow models and soil analysis, has yielded substantial environmental, energy, and cost benefits.

*Patrick Dempsey, John Sarginson, Blair Horst, Rich Pope*

## Water Conservation Awards to Small Groups

### Blair Horst, Katharine Gabor
### Dick Quigley, John Sarginson

### Drain-Down Recovery of Heating and Cooling Circulating Water

### Lawrence Livermore National Laboratory
### Department of Energy
### Livermore, CA

Using a non-traditional water conservation and cost-savings concept, DOE's Lawrence Livermore National Laboratory's (LLNL) Plant Engineering Instrument Shop and Energy Management Program saved an estimated 72,600 gallons of water per year through their Drain-Down Recovery Project. The project team came together to prevent water waste during the repair of heat and cooling water circulating systems. Their drain water recovery program reuses most building system water, as well as anti-corrosion and scale-inhibiting chemicals. The idea is simply to collect drain-down water and return it to the system following repairs rather than waste it down the drain. The project realized cost savings in three areas: water; anti-corrosion and scale-inhibiting chemicals (which total more than $9,000); and labor (reduced by $52,600). With an impressive payback period of just three months, LLNL's project effectively conserves water, prevents pollution, and reduces maintenance costs.

*Ted Haviland and Michael Noret*

### Keith Currie, Lieutenant Tammy Gray
### Ted Haviland, Robin Mansfield, Michael Noret

### 17th Training Wing

### United States Air Force
### Goodfellow Air Force Base, Texas

Severe drought conditions in San Angelo, Texas, home of Goodfellow Air Force Base, spurred the Base's Water Conservation Team into action. Partnering with the City of San Angelo, the Base adopted the city's water conservation and drought plan and expanded its own water conservation measures, decreasing water consumption by more than 16 percent and saving more than $73,000 in utility charges. Through a $3 million energy savings performance contract, the Base completed $375,000 worth of water conservation projects, installed efficient water fixtures, implemented water-efficient landscaping, and developed and maintained an aggressive water conservation awareness program. With the ESPC, the Base realized a savings of 237 million gallons of water and $48,000 per year. Also, to keep water use to a minimum, more than 60,000 square feet of lawn were converted to xeriscape landscaping or rock gardens and 1,300 work orders were completed to stop leaks and replace inefficient water fixtures.

## Water Conservation Award to an Individual

### Donald Lee J. Laurent

### Department of the Army
### Fort Polk, Louisiana

*Donald Laurent*

Using standard "off-the-shelf" technologies and alternative financing, Donald Laurent has made great strides in saving energy and water at Fort Polk Army Base. Mr. Laurent accomplished three energy-conservation measures (ECM) through an established energy savings performance contract. The first ECM involved the replacement of existing toilets, flush valves, showerheads, and faucet and sink aerators in 31 permanent barracks buildings. For the second ECM, Mr. Laurent took over the Base clothes washer and dryer contract, which allowed him to replace existing vertical axis washers with high-performance horizontal axis washers. The third ECM involved the installation of hot water loop controls, which control temperatures by recognizing low demand and anticipating high demand. Mr. Laurent's efforts have saved the Base almost $293,000 in energy and water costs and reduced the amount of associated wastewater that must be treated. By implementing his energy conservation measures at no up-front cost to the Federal government, Fort Polk saved 134,575 kilowatt-hours of electricity, 55 million gallons of water, and avoided treatment of 53 million gallons of wastewater.

## Mobility Energy Efficiency Awards to Organizations

### USS KEARSARGE

### Department of the Navy

*Commander Jim Bockert and Captain Steve Schlientz*

By implementing outstanding engineering and conservation practices such as reducing the use of high-energy-use equipment and modifying schedules to process waste more productively, USS KEARSARGE reduced hourly fuel consumption during FY 2001 by more than 20 percent, saving 1.7 million gallons of fuel and almost $1.8 million. The reduction in fuel demand was achieved while increasing steaming time by 468 percent in an increased threat condition posture. USS KEARSARGE used 2,368 gallons of fuel per hour underway at 15 knots and 564 gallons per hour in auxiliary steaming mode, reduced from 3,773 gallons per hour underway and 821 gallons per hour in auxiliary steaming mode in FY 2000. USS KEARSARGE's all-hands approach to energy conservation helped to reduce non-productive steaming hours by 220 hours, saving 220,000 gallons of fuel and $145,000. Without compromising its responsiveness, the ship's energy team developed seamless and extensive conservation management projects that have brought substantial benefits to the USS KEARSAGE, its personnel, and the Fleet.

*Commander Michael O'Neill*

## Mobility Energy Efficiency Awards to Organizations

### USS BLUE RIDGE

### Department of the Navy

In spite of increased threat conditions, the USS BLUE RIDGE's energy team delivered dramatic energy and budget savings during FY 2001. The USS BLUE RIDGE saved $2.3 million and 1.5 million gallons of fuel, an impressive 50 percent improvement over the previous year's fuel use levels. Through the application of diligent conservation engineering, the use of electronic controls, improved boiler and main engine operation, and with the help of a command-to-enlisted commitment to Fleet leadership in energy conservation, the USS BLUE RIDGE energy team dramatically reduced emissions, fuel use, and water pollution. Additionally, the USS BLUE RIDGE's 24-hour engineering trouble call log has significantly reduced turn-around time on fixing leaks and mitigating other energy conservation deficiencies.

*Hugh Jones*

## Mobility Energy Efficiency Award to an Individual

### Hugh Jones

### Center for Army Analysis
### Fort Belvoir, Virginia

Hugh Jones spearheaded the development of several photovoltaic (PV) mobile power systems for the Department of the Army. These light-weight, thin-film PV modules are designed to provide flexible, rapidly-deployable mobile power systems for the Army's tactical operations in training areas or on the battlefield. His initiative and technical analysis of PV systems advanced the project quickly through the feasibility and analysis phases of production. During FY 2001, the Army developed and field-tested a second-generation PV-powered mobile system, which provided 100 percent of the power required for the Army's tactical operations. These systems have provided numerous benefits to the Army such as reduced fuel consumption and costs, decreased maintenance on generators, and enhanced operational readiness.

## Alternative Financing Awards to Organizations

### Veterans Affairs
### Salt Lake City Health Care System

### Department of Veterans Affairs
### Salt Lake City, Utah

*Brian McClung and Michael Lemmert*

During FY 2001, the Veterans Affairs Salt Lake City Health Care System used an energy savings performance contract to implement wide-ranging energy conservation measures, making the medical facility a showcase of energy efficiency. The measures included current technologies such as lighting, controls, and chiller plant upgrades, as well as new technologies such as a rotoclave medical waste sterilizer. Other improvements included refurbishment and expansion of a solar hot water system and utility rate reduction. Training was also required for operations and maintenance staff, ensuring continued energy savings of the projects. These energy-saving measures have resulted in dramatic reductions in energy use, with annual energy savings of 50.7 billion Btu—a decrease of 24 percent—and guaranteed annual cost savings of $493,000.

### 42nd Civil Engineering Squadron
### Maxwell Air Force Base and Gunter Annex

### United States Air Force
### Maxwell Air Force Base, Alabama

*Lieutenant Colonel Anne-Marie Sykes*

The men and women of the 42nd Civil Engineering Squadron at Maxwell Air Force Base and Gunter Annex have dedicated themselves to meeting many energy conservation challenges. The group used an energy savings performance contract to implement seven energy saving projects that resulted in $12.7 million in capital improvements. Some of the projects included decentralization of the central heating plant; automation of the central chiller plant; installation of lighting controls and high-efficiency lighting; and upgrading of energy management control systems, air handler units, and freezers. These energy measures will save an estimated $1.4 million in energy costs and 1,300 billion Btu per year.

## Alternative Financing Awards to Organizations

*Tom Denslow, Mark Krog, Lt. Col. Darren Daniels, Major Mark Zimmerhanzel, Tsgt Paul Holley, Willis Barrow*

### 7th Civil Engineer Squadron
### Dyess Air Force Base

### United States Air Force
### Dyess Air Force Base, Texas

In its ongoing efforts to meet challenging energy performance standards, the 7th Civil Engineer Squadron implemented a $5.4 million energy savings performance contract, saving more than 46 billion Btu and more than $682,000 per year while reducing energy use by 8.7 percent. Energy saving measures included 26 steam boilers and 5 air conditioning system retrofits, an ice storage system for peak load shedding, direct digital controls in 20 buildings, and new T-8 bulbs in 101 buildings. Lighting levels in the B-1 engine repair shop were improved by more than 400 percent, greatly adding to employee comfort and productivity. Two additional new projects will further reduce energy consumption and demonstrate the 7th Civil Engineer Squadron's commitment to making Dyess Air Force Base a showcase for energy conservation.

*Jeff Allen*

### Marine Corps Base Camp Pendleton

### United States Marine Corps
### Camp Pendleton, California

Marine Corps Base Camp Pendleton steadfastly uses alternative financing to implement energy conservation projects. Since 1996, the Camp has awarded 25 delivery orders under a utility energy service contract (UESC) with San Diego Gas and Electric, totaling more than $30 million in project costs. This year, two projects totaling almost $6 million were awarded through the UESC vehicle, resulting in an estimated 67 billion Btu in annual energy savings and $3 million in annual cost savings. The projects include upgrading direct digital controls, replacing electric dryers with gas dryers, replacing inefficient furnaces and HVAC units, and installing natural day lighting. President Bush visited Camp Pendleton in May 2001, and congratulated the Base for aggressively implementing energy conservation opportunities and reducing operating costs.

## Alternative Financing Awards to Organizations

### Marine Corps Air Station Yuma

### United States Marine Corps Air Station Yuma, Arizona

Marine Corps Air Station Yuma is using alternative financing as its primary strategy to accomplish energy conservation projects. Working closely with the local utility, Arizona Public Service, MCAS Yuma completed work in FY 2001 through a utility energy service contract that used eight different energy conservation technologies. These ranged from direct digital control installation to more simple measures, such as replacing incandescent lighting with light-emitting diode technology in fire alarm transmission boxes. Total project costs were less than $1.5 million, which results in a simple payback period of 7.9 years. Projected savings from the project are almost $186,000 and more than 10 billion Btu annually.

*Ron Durfey*

### Camp Lejeune

### United States Marine Corps Camp Lejeune, North Carolina

Camp Lejeune, the largest Marine Corps base in the world, used a team approach to tackle its biggest energy efficiency investment to date. A $16 million utility energy service contract project upgraded 2,093 air-to-air heat pumps in four family housing areas by replacing old heating and cooling equipment with geothermal heat pumps. Energy use has decreased by 33 percent, and annual savings of almost $1.5 million will amortize the financed portion of the investment—about $12.7 million—in 10 years. A ground-coupled heat pump upgrade was implemented in 2,089 of the 4,400 military family housing units during FY 2001. Total FY 2001 savings as a result of the upgrade are more than $184,000 and more than 24 billion Btu during the construction year.

*Commander Steve Scanlan*

*Perry Boechen, Suvit Boyd, Paul Anderson, Mitchell Akers*

## Alternative Financing Awards to Small Groups

### Mitchell Akers, Paul Anderson
### Perry L. Boeschen, Suvit S. Boyd
### Robert Considine

### Des Moines Energy Conservation Project

### General Services Administration
### Des Moines, Iowa

The General Services Administration's (GSA) Des Moines team maximized energy-saving opportunities by using a "whole building approach" to energy reduction at the Des Moines Federal Building. Using Super ESPC financing, the team implemented several different projects at the site totaling $1.4 million. Energy-saving measures include replacement of the entire steam boiler plant, conversion of multi-zone air handling systems to variable air volume flow, removal and replacement of steam traps, installation of water-conserving fixtures, and securing rate reduction for natural gas. The project also included installation of vending machine controllers, which served as an energy saving measure as well as a "pilot project"—a model that can be duplicated in other GSA facilities in the Heartland Region. Because various measures were implemented, the facility's energy consumption is guaranteed to be reduced by 6.5 billion Btu annually, with cost savings of $67,000.

*Kenneth Cargil, Tim Adams, Terry Sims, Steve Moore, Bill Weinberg*

### Kenneth J. Cargil
### Terry A. Sims
### Bill Weinberg
### Steve E. Moore
### Tim Adams

### Austin Service Center ESPC

### Internal Revenue Service
### Department of the Treasury
### Austin, Texas

The Internal Revenue Service's area-wide shared services group obtained ESPC financing to complete numerous upgrades at the Austin Service Center, resulting in dramatic energy savings. The group tackled three major areas of energy use: air conditioning, lighting, and water use. For the chilled water system, installation of a new chiller along with other measures created a highly efficient and reliable system to serve the entire facility. The group also completed replacement and retrofits of lighting fixtures, lamps, and ballasts. Water conservation markedly improved through the installation of high efficiency fixtures that use less than half the water as the old fixtures. Through the efforts of the group, the facility has saved more than 20 billion Btu, 2.1 million gallons of water, and $310,000 per year.

## Alternative Financing Awards to Small Groups

### Florine Rhodes, Sek Eng
### Ricardo Cabanit, Josef Yannotti
### Louis Lozito

### Varick Street Building Modernization Group

### General Services Administration
### New York, New York

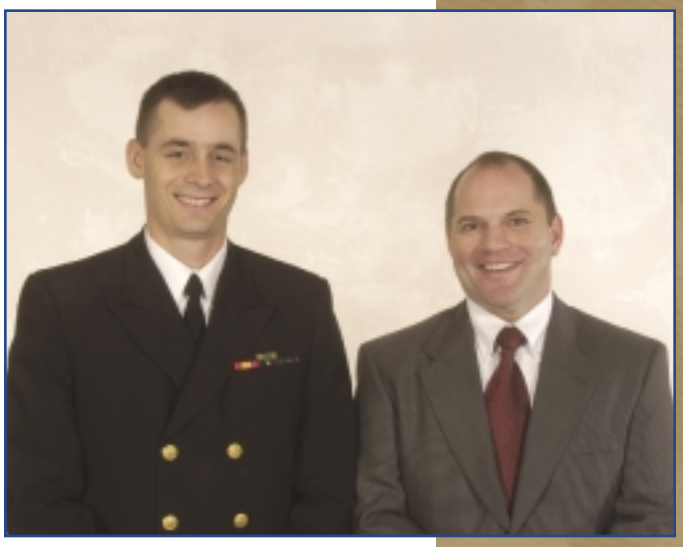
*Ricardo Cabanit, Josef Yannotti, Sek Eng, Louis Lozito*

By combining agency-funded work and utility-financed work into a single project, the Varick Street Building Modernization Group accomplished a variety of overdue measures at the facility. The building required several energy upgrades, including replacement of its chillers, which used CFC refrigerant. Through the use of a GSA area-wide utility contract, the group combined both the chiller replacement (an agency-funded project) and utility-financed measures into one contract. These included a new energy management control system; variable frequency drives and energy-efficient motors; and energy-efficient lights. As a result, the group expects annual savings of more than $431,000 and energy savings of more than 14.8 billion Btu. The cost savings will allow payback of the total project cost, including interest, in less than 10 years. By integrating the funded and financed work into one project, the GSA team demonstrated that agencies do not have to defer energy conservation or facility upgrade work due to a lack of full funding. In fact, this combined financing strategy has already appeared in two other GSA locations and has become an option that is routinely considered at GSA facilities.

### Belton O. Tisdale
### Lieutenant Junior Grade Nolan E. Redding

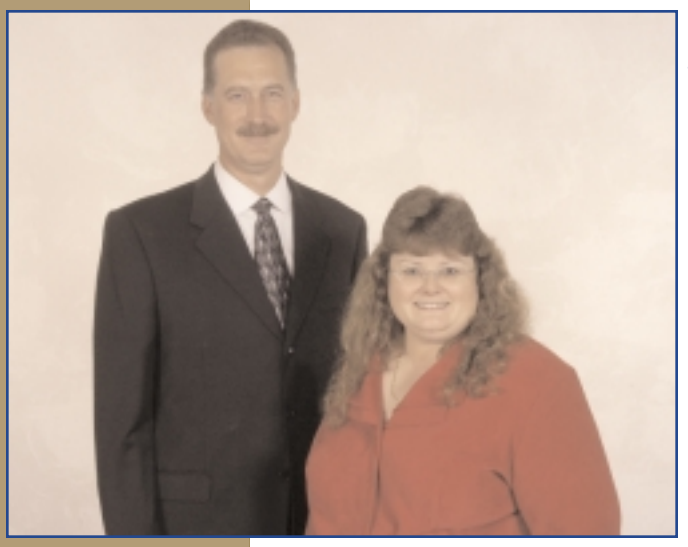
### Beaufort Housing
### Geothermal Heat Pump Project

### United States Marine Corps
### Air Station Beaufort, South Carolina



*Lieutenant Jr. Grade Nolan Redding and Belton Tisdale*

Marine Corps Air Station Beaufort, home to seven Marine and two Navy F/A-18 fighter squadrons, entered into a basic ordering agreement with a local utility company in FY 2001 to replace old HVAC and hot water generating equipment with geothermal heat pump systems that provide heating, cooling and domestic hot water. The geothermal upgrade took place in 1,236 of the 1,276 military family housing units on the Base. Implementation of this $11.5 million utility energy service contract project cut energy use by 25 percent in family housing. The project saved more than $52,000 and almost 5 billion Btu in FY 2001, and energy reductions are estimated to exceed 40 percent in FY 2002.



*John Robison and Lisa Marx*

## Alternative Financing Awards to Small Groups

### John Robison, Mark A. Waite
### Oliver Wood, Michael Friedman
### Lisa Marx

### 434th Air Refueling Wing

### United States Air Force
### Grissom Air Reserve Base, Indiana,

Members of the 434th Air Refueling Wing at Grissom Air Reserve Base have made top-flight progress in implementing the policy and directives of Executive Order 13123. Evidence of their outstanding performance is the 56 percent reduction in energy use from FY 2000 to FY 2001 and overall reduction of 64 percent since FY 1985. The successful completion of an ESPC project, achieved through effective planning and preparation by Base engineers and the negotiation, award, and administration by Base contracting, resulted in improvements that will continue to pay significant dividends long into the future. The project installed energy-efficient lighting and heating equipment, affecting virtually all Base buildings. It was also the vehicle by which Grissom's outdated and inefficient central heating plant was permanently removed from service. Total cost and energy saved during FY 2001 totaled more than $1 million and 168 billion Btu.

*Bill Coursey*

## Alternative Financing Awards to Individuals

### Bill R. Coursey

### Office of Facilities Management
### Bureau of Indian Affairs

### Department of the Interior
### Albuquerque, New Mexico

With utility bills exceeding $450,000 annually, Bill Coursey recognized that Sherman Indian High School, which was constructed in 1900 and serves Native American children, needed repairs and improvements. Through DOE's Super ESPC, Mr. Coursey accomplished energy conservation improvements that included lighting, heating, ventilation, and a renewable energy photovoltaic system. In addition to the energy conservation measures implemented through the Super ESPC project, Mr. Coursey has been responsible for other energy-saving successes achieved by the Bureau of Indian Affairs. His efforts have helped the Bureau realize savings of more than 8 billion Btu and more than $179,000 during FY 2001.